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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,097	12/23/2003	Judith M. Vandewinckel	117545	8003

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EXAMINER	
RODEE, CHRISTOPHER D	

ART UNIT	PAPER NUMBER
1756	

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/743,097	VANDEWINCKEL ET AL.	
	Examiner	Art Unit	
	Christopher RoDee	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/28/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 19 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The cyan and yellow toners of claim 19 recite number-average molecular weights of about 9 to 11 kpse while the black and magenta toners have number-average molecular weights of about 10 to about 14 kpse. These values are outside the scope of claim 18's requirement that the toner have a number-average molecular weight of about 9 to about 13.4. Claim 19 does not properly further limit claim 18.

Claim Rejections - 35 USC § 112

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-19 specify a "cohesion" of the toner particles of from about 55 to about 98 %. Cohesion is a numerical value. The claim itself does not provide any definition of the term or of how to calculate or measure this value. As a result, the artisan would look to the specification for guidance. The specification guidance does not describe the manner of determining the cohesion value with sufficient particularity so that the artisan would be reasonably apprised of the claimed "cohesion" value.

Cohesion is discussed in the specification in ¶ [0034] as being measured by placing a known amount of toner (e.g., two grams) on a sieve with three screens having meshes of, for

example, 53 microns, 45 microns, and 38 microns in order from top to bottom. The sieve is shaken under conditions, such as 115 seconds at a 1 millimeter vibration amplitude. The toner cohesion value is related to the amount of toner remaining on the screens at the end of the time. A cohesion value of 100% corresponds to all of the toner remaining on the top screen at the end of the vibration step and a cohesion value of zero corresponds to all of the toner passing through all three screens, that is, no toner remaining on any of the three screens pt the end of the vibration step. The higher the cohesion values the lesser the flowability of the toner. The cohesion value appears to be a result of not only the toner but the mesh sizes of the sieves, the time of vibration, the amplitude of vibration, and the number of sieves.

The claims as presented are indefinite because it is unclear how the cohesion value is actually calculated. It is unclear how much of the toner needs to retained on any one, all, or some combination of screens in order to obtain a cohesion value according to the claims. For example, if 50 % of the toner is retained on a 38 μm screen and 25% of the toner is retained on the 45 μm screen, is the cohesion value 25%, 50%, or 75%? It is unclear if different screen sizes can be used (e.g., 100 microns or 20 microns) because the specification only provides examples of useful mesh sizes, not requirements or guidance. Further, the length of time of shaking and intensity would affect the amount of toner remaining on each screen because more vigorous or lengthy shaking would break apart more toner aggregates while less shaking would not.

The claims do not particularly point out and distinctly claim the invention as required by this section of code. As a result, the claims are indefinite.

The claimed relationship of weight average molecular weight and number average molecular weight (MWD) is indefinite as currently presented. Based on the disclosure in the

specification on ¶ [0032], the MWD is a weight average molecular weight (Mw) divided by number average molecular weight (Mn). MWD in the claim is about 2.2 to about 10. As clarified in the recent response, kpse is a thousands value. In the claim, Mw is about 28000 to about 130000 pse while Mn is about 9 to about 13.4 pse. The smallest value of MWD than can be obtained from the claimed Mw and Mn values is 2089.6. The claims as presented are indefinite because the artisan cannot simultaneously obtain the requisite MWD, Mw, and Mn for the toner particles.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mizoe *et al.* In US Patent Application Publication 2003/0152856 discloses a toner containing a binder resin and a colorant. The toner has a circularity of 0.970 or higher PP [0150]). The toner has Mn of 1000 to 50,000 and Mw of 6000 to 1,000,000 (¶ [0194]). Useful binder resins include styrene copolymers (¶ [0162] – [0163]). Exemplified toners have styrene-butyl acrylate binder resins with Mp = 18,000, Mn = 13,000, and Mw = 315,000 (Toner A-2). This reference does not present the claimed toner Mw or MWD and does not disclose the cohesion. Tamura *et al.* in US Patent Application Publication 2002/0076638 discloses a toner with specific molecular weight characteristics as seen in ¶ [0032] and a styrene copolymer binder resin (¶ [0043]). The exemplified toner of Example I has two styrene-butyl acrylate copolymers as the binder resin and a colorant. However, the toner does not have the requisite molecular weight characteristics or cohesion claimed. Matsuoka *et al.* in US Patent 6,074,796 and Mitsuhashi in US Patent 4,499,168 disclose various toners with styrene-butyl acrylate binder resins (Mitsuhashi Example I; Matsuoka cols 7-9) but none of these references disclose the combination of molecular weight and cohesion characteristics required by the instant claims.

Morris *et al.* in US Patent Application Publication 2005/0175921 discloses toners with a preferred circularity of 0.94-0.96 (¶ [0024]) and resin MWD of at least 3 (¶ [0031]-[0034]). This toner is produced by an emulsion aggregation process (see Toner 1 in ¶ [0119]) but the reference does not disclose the claimed molecular weight characteristics or cohesion values.

Note that the word "weight" appears to be missing from claim 1 at line 3 after "and a molecular". The same deficiency is present in claim 18 at line 7.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdr
12 December 2005

CHRISTOPHER RODEE
PRIMARY EXAMINER